

## ABSTRACT OF THE DISCLOSURE

Substantially uniform deposition of conductive material on a surface of a substrate, which substrate includes a semiconductor wafer, from an electrolyte containing the conductive material can be provided by way of a particular device which includes first and second conductive elements. The first conductive element can have multiple electrical contacts, of identical or different configurations, or may be in the form of a conductive pad, and can contact or otherwise electrically interconnect with the substrate surface over substantially all of the substrate surface. Upon application of a potential between the first and second conductive elements while the electrolyte makes physical contact with the substrate surface and the second conductive element, the conductive material is deposited on the substrate surface. It is possible to reverse the polarity of the voltage applied between the anode and the cathode so that electro-etching of deposited conductive material can be performed.